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Class: MICROANATOMY

Course #: MICRO967

Test Key: CECCDBACDE	AABABDBDDD	ECDAAEABCD	DCBEDDBBCC	DAEBCECDAD
Items 1- 50: 1234567890	1234567890	1234567890	1234567890	1234567890
Student's Answers: **E*****	*****	*****	E*D*****	*****

Test Key: E EECDBABD	AAABDEBACB	ACCADDEBDC	ABDBABAABB	CBABAACBDE
Items 51- 100: 1234567890	1234567890	1234567890	1234567890	1234567890
Student's Answers: * *****	*****CE***	*****E*****	*****A	AA*****

BONUSED = 1,31,33,55,75,76

NAME: _____

MICROANATOMY MIDTERM EXAM
MARCH 6, 1997

QUESTIONS 1 TO 76 SELECT THE SINGLE BEST ANSWER:

1. Select the correct statement. The skin consists of ...
 - ☒ A. only thick skin.
 - ☐ B. the epidermis, dermis, and hypodermis.
 - ☒ C. the stratified squamous keratinized epithelium and dense irregular connective tissue.
 - ☐ D. the epidermis, dermis, hair, nails and glands (sebaceous and sweat).
 - ☐ E. All of the above.

2. Select the correct statement.
 - ☒ A. Melanocytes are responsible, ultimately, for protecting the skin from ultraviolet (U.V.) light.
 - ☐ B. Keratinocytes must be dead to fully accomplish their principal function in skin.
 - ☒ C. Langerhans cells are usually found in the stratum spinosum.
 - ☐ D. A and B are correct.
 - ☒ E. A, B, and C are correct.

3. Select the correct statement.
 - ☒ A. The entire hair shaft is composed of keratinocytes containing soft keratin.
 - ☐ B. Eccrine sweat glands are the glands affected in individuals with acne.
 - ☒ C. Hair growth is cyclic with terminal hair of the scalp usually having the longest growth phase.
 - ☐ D. Apocrine sweat glands are the most common type of sweat gland.
 - ☒ E. None of the above are correct.

4. Select the correct statement.
 - ☒ A. There are numerous mechanoreceptors in the nail plate.
 - ☐ B. The dermal papillae of thick and thin skin help hold the hypodermis to the dermis.
 - ☒ C. Most of the melanin found in the skin is present in the keratinocytes.
 - ☐ D. The cleavage lines of the dermis are formed by the break down and degradation of the collagen and elastic fibers.
 - ☐ E. Pemphigus is a genetic disease which results from the lack of zonula occludens in the stratum spinosum.

5. Select the INCORRECT statement.

- ☒ A. Epidermal wound healing involves the proliferation and migration of the stratum basale cells.
- ☒ B. Granulation tissue is the newly forming connective tissue in a deep wound that is undergoing repair.
- ☒ C. Psoriasis results from the too rapid proliferation and subsequent sloughing of the keratinocytes before they are completely mature.
- ☐ D. First degree burns have loss of skin function and have greater systemic effects than local effects.
- ☒ E. Thermal regulation is controlled by shunting blood to/from the superficial blood plexus.

6. Select the correct statement.

- ☒ A. Striae or stretch marks are found only on women who have had children.
- ☒ B. Dimethyl sulfoxide (DMSO) is a penetrating agent which can carry poisons as well as drugs or innocuous materials through the epidermis.
- ☒ C. Involucrin is the glycolipid secreted by cells only in the stratum basale.
- ☒ D. The enzyme, transglutaminase, is an enzyme unique to melanocytes.
- ☒ E. Exposure to lots of UV-A does not increase your chances of skin cancer.

7. During accommodation for near vision

- ☒ A. the lens assumes a rounder shape
- ☐ B. the ciliary muscle relaxes and the suspensory ligaments (zonules) increase tension
- ☐ D. the pupil dilates
- ☐ E. the cornea changes curvature

8. The lens

- ☐ A. contains primarily GAGS
- ☒ B. provides 2/3 of the focussing power of the eye
- ☒ C. is composed primarily of modified epithelial cells called lens fibers
- ☒ D. contains no living cells
- ☒ E. is enclosed in a thick hydrated capsule of dense irregular CT

9. Identify a correct statement about neural elements in the eye

- ☒ A. the neural retina develops from the corneal epithelium
- ☐ B. axons in the ganglion cell axon layer are myelinated
- ☐ C. Muller cells transmit visual information to the ganglion cells
- ☐ D. light penetrates ganglion cell layer before it reaches the photoreceptors
- ☐ E. light penetrates the pigment epithelium before it reaches the photoreceptors

10. Which of the following is correct concerning photoreceptors.

- ☒ A. rods are more common than cones in the fovea centralis
- ☐ B. cones are most sensitive to dim light
- ☐ C. cones are most concentrated at the optic disk
- ☐ D. rods are sensitive to light, while cones are sensitive to darkness
- ☐ E. cones are responsible for color vision

11. Which of the following is not a component of the tunica fibrosa of the eye.

- ☒ A. Iris
- ☐ B. Cornea
- ☐ C. Sclera
- ☐ D. Bowman's membrane
- ☐ E. Descemet's membrane

12. Rods (photoreceptors) in the eye

- ☒ A. contain rhodopsin photopigment which is sensitive to dim light
- ☐ B. are concentrated in the fovea centralis
- ☐ C. are most sensitive in bright colored light
- ☐ D. contain numerous melanocytes in their apical surface which form the retinal pigment epithelial layer
- ☐ E. contain photopigments sensitive to red, green, and blue

13. Identify a correct statement about the vestibular system

- ☐ A. the semicircular canals contain numerous calcium carbonate crystals called otoliths
- ☒ B. the otolith organs are most sensitive to gravity
- ☐ C. there are three otolithic maculae in each ampulla, positioned orthogonal to one another
- ☐ D. the cupula contains a higher density of otolithic granules than the macula
- ☐ E. The otolithic membrane is normally surrounded by perilymph

14. Identify a correct statement about inner ear anatomy

- ☒ A. the scala tympani borders the basilar membrane
- ☐ B. the scala tympani and scala media connect at the helicotrema
- ☐ C. the vestibular (Reissner's) membrane separates the scala vestibuli and scala tympani
- ☐ D. perilymph is created by the stria vascularis
- ☐ E. middle ear bones directly vibrate the round window in the scala tympani

15. The stria vascularis of the inner ear

- ☒ A. anchors the inner aspect of the organ of Corti.
- ☐ B. is composed of a vascularized epithelium thought to produce endolymph.
- ☐ C. is the embryological precursor of the inner hair cells.
- ☐ D. is composed of epithelial cells thought to secrete the tectorial membrane.
- ☐ E. separates the scala vestibuli from the round window.

16. The cornea

- ☒ A. provides 1/3 of the focussing power of the eye.
- ☐ B. contains no nerve endings.
- ☒ C. contains a high water content to maintain clarity.
- ☐ D. is avascular and receives most of its nutrients by diffusion.
- ☐ E. is composed primarily of modified epithelial cells.

17. Sympathetic innervation in the eye controls the action of

- ☒ A. the ciliary muscle.
- ☐ B. the pupillary dilator muscle.
- ☐ C. the cornea.
- ☐ D. the pupillary constrictor muscle.
- ☐ E. the lens.

18. Which of the following is not true of thyroid follicles

- ☒ A. Contain the thyroid hormone precursor thyroglobulin
- ☒ B. Are usually lined by a simple cuboidal epithelium
- ☒ C. Are composed of follicular epithelial cells that release thyroxine (T₃, T₄)
- ☐ D. Contain parafollicular cells which regulate the secretion of thyroxine from the follicular epithelial cells
- ☐ E. Contain parafollicular cells that release calcitonin

19. Which of the following is not produced by a neuron?

- ☒ A. Antidiuretic hormone (Vasopressin)
- ☒ B. Luteinizing hormone -releasing hormone (LHRH)
- ☒ C. Epinephrine
- ☒ D. Thyroid stimulating hormone
- ☒ E. Oxytocin

20. Which of the following is INCORRECTLY matched?

- ☒ A. Oxyphils -- parathyroid gland
- ☒ B. TSH -- basophils
- ☒ C. Herring bodies -- pars nervosa
- ☒ D. Vasopressin -- pars distalis
- ☒ E. Epithelially-lined follicles -- pars intermedia

21. Which of the following is INCORRECTLY matched?

- ☒ A. D(elta) cells of the pancreas - somatostatin
- ☒ B. Parenchymal cells of the adrenal medulla - epinephrine & norepinephrine
- ☒ C. Theca interna cells - estrogen *Androgen*
- ☒ D. B(eta) cells of the pancreas - insulin
- ☒ E. Oxyphils - parathyroid hormone

22. Which of the following cells are correctly paired with it's secretory product?

- ☒ A. Acidophils of the pars distalis - FSH (follicle-stimulating hormone)
- ☒ B. Oxyphil cells - parathyroid hormone
- ☒ C. Acidophils of the pars distalis - prolactin
- ☒ D. Chromaffin cells of adrenal gland - aldosterone
- ☒ E. Chromophobes of the adenohypophysis -- (MSH) melanocyte stimulating hormone

23. Oxyphil cells are present in the

- ☒ A. adenohypophysis.
- ☒ B. pineal gland.
- ☒ C. neurohypophysis.
- ☒ D. parathyroid gland.
- ☒ E. adrenal cortex.

24. Which ONE of the following "structure-secretory product" combinations is correct?

- ☒ A. Corpus luteum - progesterone and estrogen.
- ☐ B. Acidophils of the pars distalis - follicle-stimulating hormone
- ☐ C. Beta cells of the islets of Langerhans - glucagon.
- ☐ D. Zona glomerulosa of the suprarenal gland - cortisol.
- ☐ E. Parafollicular cells - parathyroid hormone (PTH).

25. The human parathyroid gland secretes parathyroid hormone which acts peripherally to...

- ☒ A. increase the absorption of calcium in the small intestine.
- ☐ B. increase calcium deposition in bone, lowering blood calcium levels.
- ☐ C. influence gonadal development in the period prior to sexual maturity.
- ☐ D. decrease the excretion of phosphate by the kidneys.
- ☐ E. increase both the number of cellular mitochondria and their cristae.

26. Which is true of chromaffin cells

- ☐ A. They are associated with venules instead of capillaries like other endocrine cells.
- ☐ B. Each receives parasympathetic innervation.
- ☐ C. They synthesize and store acetylcholine which when oxidized give the cell a brown color.
- ☐ D. When exposed to adrenocortical gonadal steroids they convert norepinephrine to epinephrine.
- ☒ E. They release their product via exocytosis upon stimulation by sympathetic neurons of the autonomic nervous system.

27. A hormone released by which of the following is responsible for uterine contractions during parturition (the act of giving birth)?

- ☒ A. Pars nervosa
- ☐ B. Pars distalis
- ☐ C. Pars intermedia
- ☐ D. Pars tuberalis
- ☐ E. Adenohypophysis

28. The anatomical bulk of the secondary capillary plexus (capillary plexus II) formed by the anastomoses of the hypothalamo-hypophyseal portal system is located in the...
- A. Pars tuberalis
 - ☒ B. Pars distalis
 - C. Pars intermedia
 - D. Infundibular stalk
 - E. Median eminence
29. The pancreatic cell type responsible for the synthesis and secretion of glucagon is the
- A. Acinar cell
 - B. Beta (B) cell
 - ☒ C. Alpha (A) cell
 - D. D cell
 - E. F cell
30. Not a normal component of arterioles or venules:
- ☒ A. Tunica intima
 - B. Tunica media
 - ☒ C. Tunica adventitia
 - ☒ D. Vasa Vasorum
31. Myocardial cells extend into the tunica adventitia of the
- A. Aorta
 - B. Pulmonary artery
 - C. Left main coronary artery
 - D. Superior vena cava
 - ☒ E. None of the above
32. The basic tissue type of Purkinje fibers is
- A. Epithelium
 - B. Connective
 - ☒ C. Muscle
 - D. Neural
33. Which statement is NOT TRUE about the thoracic duct or right lymphatic duct?
- ☒ A. There is smooth muscle in the tunica media.
 - B. They are not innervated.
 - C. They contain vasa vasorum.
 - ☒ D. The adventitia is relatively underdeveloped.
 - E. Smooth muscle is both longitudinally and circularly arranged.

34. Which of the following statements concerning the olfactory region is FALSE?
- ☒ A. It is located in the superior portion (roof) of the nasal cavity.
 - ☒ B. It contains olfactory cells which are actually bipolar neurons.
 - ☒ C. The watery mucus that washes this region is primarily supplied by Bowman's glands.
 - ☒ D. The basal cells in the epithelium replace the sustentacular cells when they die.
 - ☒ E. Odors are detected via chemical receptors on the surface of long microvilli that lie on the surface of the olfactory epithelium.
35. At which of the following sites is pseudo-stratified ciliated columnar epithelium with goblet cells normally located?
- ☒ A. Anterior surface of the epiglottis
 - ☒ B. Oropharynx
 - ☒ C. True vocal folds
 - ☒ D. False vocal folds
 - ☒ E. Respiratory bronchioles
36. Which of the following is not a component of the air-blood barrier?
- ☒ A. Type I cells = squamous alveolar cells
 - ☒ B. Endothelial cells of alveolar capillaries
 - ☒ C. A fused basal lamina produced by two adjacent epithelia
 - ☒ D. Clara cells
37. Which of the following cells is found primarily lining bronchioles, contains numerous mitochondria as well as secretory granules and secretes glycosaminoglycans (GAGs) onto the luminal surface of the airway?
- ☒ A. Small granular cells
 - ☒ B. Clara cells
 - ☒ C. Ciliated columnar cells
 - ☒ D. Goblet cells
 - ☒ E. Type II cells = great alveolar cells

38. Which of the following statements is/are True for conducting bronchiole?

- ☒ A. They have cartilage plates in their walls.
- ☒ B. The diameter of their lumen can be adjusted by contraction of smooth muscle bands in their lamina propria.
- ☒ C. Their lumens are lined by simple cuboidal epithelium with patches of simple squamous epithelium.
- ☐ D. Significant gas exchange between the air and blood occurs in these bronchiole.
- ☐ E. The epithelium lining their lumen is not ciliated.

39. Which of the following statements concerning surfactant is FALSE:

- ☒ A. Surfactant is produced by type II cells (great alveolar cells).
- ☒ B. The presence of surfactant in the lungs is needed to prevent respiratory distress syndrome in premature infants.
- ☐ C. Surfactant prevents the lumen of the bronchi from collapsing.
- ☐ D. Surfactant helps reduce the surface tension in the alveoli.
- ☐ E. Surfactant is composed primarily of phospholipids.

40. Which of the following constitutes the largest percentage of the cells found on the surface of the alveoli of the lung?

- ☐ A. Alveolar macrophages
- ☐ B. Clara cells
- ☐ C. Type I cells
- ☒ D. Type II cells
- ☐ E. Ciliated cuboidal epithelial cells

41. Which of the following structures consists of longitudinal air passage lined by a continuous series of alveoli?

- ☐ A. Alveolar pore
- ☐ B. Respiratory bronchiole
- ☐ C. Alveolar sac
- ☒ D. Alveolar duct
- ☐ E. Alveolar septum

42. The functions of the periodontal ligament include:

- ☒ A. Suspension of the tooth in the bony alveolus
- ☒ B. Formation of cementum in the adult tooth
- ☒ C. Induction of bone growth in the lamina dura of the bony alveolus
- D. A and B are correct
- E. A, B, and C are correct

43. Once formed, the clinical crown of the a tooth will

- ☒ A. vary in size dependent upon the degree of eruption.
- ☒ B. be exposed to the oral cavity environment.
- ☒ C. consist entirely of calcified material. →
- ☒ D. A and B are correct
- ☒ E. A, B, and C are correct

44. During a well-baby examination, you notice and document that the recently erupted incisor teeth are rather rough on their apical surfaces. During an examination three years later caused by three-month long illness of the child, you notice that the teeth are now smooth along the apical surface but otherwise clean. The most likely explanation(s) of your finding include

- ☒ A. demineralization of the enamel because of inadequate calcium intake during the illness.
- ☒ B. normal wear and tear of the teeth.
- ☒ C. poor oral hygiene by the parents and child.
- D. A and B are correct
- E. A, B, and C are correct

45. Odontoblasts

- ☒ A. are caused to be formed by the stratum intermedium.
- ☒ B. are derived from oral ectoderm.
- ☒ C. are long-lived cells.
- D. A and B are correct
- E. A, B, and C are correct

46. Lightly keratinizing (~~parakeratinizing~~) stratified squamous epithelium is normally found on the

- ☒ A. oral surface of the hard palate.
- ☒ B. filiform papilla of the dorsum of the tongue.
- ☒ C. vermillion border of the lip.
- D. A and B are correct
- E. A, B, and C are correct

Start here for EXAM II
Gross Anatomy.

Block 2
test 2

47. Bile flow is centrifugal (away from center or core) in the

- A. hepatic acinus.
- B. hepatic portal lobule.
- C. "classic" hepatic lobule.
- D. A and B are correct
- E. A, B, and C are correct

48. Hepatocytes with the highest metabolic capacity are normally situated near the center or core of the

- A. hepatic acinus.
- B. hepatic portal lobule.
- C. "classic" hepatic lobule.
- D. A and B are correct
- E. A, B, and C are correct

49. Lipids normally enter the liver via the

- A. hepatic artery.
- B. hepatic portal vein.
- C. lymphatics of portal triad.
- D. A and B are correct
- E. A, B, and C are correct

50. Kupffer cells

- A. are found in the liver only.
- B. have functions similar to macrophages of the spleen.
- C. are normally found in the connective tissue of the portal areas.
- D. A and B are correct
- E. A, B, and C are correct

51. Situated between two capillary beds

- A. Hepatic portal vein
- B. Hypophyseal portal vein
- C. Efferent arteriole of kidney
- D. A and B are correct
- E. A, B, and C are correct

52. Gastric mucosa contains

- A. Absorptive cells
- B. Mucous producing cells
- C. Enteroendocrine cells
- D. A and B are correct
- E. A, B, and C are correct

53. Small intestinal mucosa contains
- A. ☒ Absorptive cells
 - B. ☒ Mucous producing cells
 - C. ☒ Enteroendocrine cells
 - D. A and B are correct
 - E. ☒ A, B, and C are correct
54. Large intestinal mucosa contains
- A. Absorptive cells
 - B. Mucous producing cells
 - C. Enteroendocrine cells
 - D. A and B are correct
 - E. ☒ A, B, and C are correct
55. Abundant microvillous or microvillous-like structures are found on the luminal surface of cells in the
- A. large intestine.
 - B. efferent ductules of testis.
 - C. ☒ proximal tubule of kidney.
 - D. A and B are correct
 - E. A, B, and C are correct
56. Nerve cell bodies found in the myenteric plexus (Auerbach's) ganglia function as
- A. ☒ postganglionic parasympathetic neurons.
 - B. ☒ enteric neurons.
 - C. ☒ postganglionic sympathetic neurons.
 - D. A and B are correct
 - E. A, B, and C are correct
57. Materials trapped in the renal glomerular basal lamina may later be found in phagocytic vesicles within
- A. cells of the proximal tubule.
 - B. ☒ mesangial cells.
 - C. podocytes.
 - D. A and B are correct
 - E. A, B, and C are correct
58. Contained within medullary rays of the kidney
- A. ☒ Collecting ducts
 - B. ☒ Convoluted portions of proximal and distal tubules
 - C. ☒ Vasa recti
 - D. A and B are correct
 - E. A, B, and C are correct

59. The juxtaglomerular cells of the kidney are normally found in the
- A. distal tubule.
 - ☒ B. afferent arteriole.
 - C. peripheral margin of the renal corpuscle.
 - D. A and B are correct
 - E. A, B, and C are correct
60. Gastric parietal cells are responsible for the production of
- ☒ A. hydrochloric acid.
 - ☒ B. intrinsic factor.
 - C. gastric lipase.
 - ☒ D. A and B are correct
 - E. A, B, and C are correct
61. Gastrin normally stimulates the secretion of
- ☒ A. gastric acid.
 - B. bicarbonate-rich secretions from pancreas and liver.
 - C. glucose.
 - D. A and B are correct
 - E. A, B, and C are correct
62. The majority of water resorption by the kidneys is done in the
- ☒ A. proximal tubule.
 - B. distal tubule.
 - C. cortical collecting tubules.
 - D. medullary collecting ducts.
63. Secretin normally stimulates the release of pancreatic
- ☒ A. ductal fluids rich in bicarbonate.
 - B. acinar fluids rich in digestive enzymes.
 - C. insulin.
 - D. A and B are correct
 - E. A, B, and C are correct
64. A secondary oocyte may be found in a
- A. developing secondary follicle.
 - ☒ B. Graafian follicle at time of ovulation.
 - C. primary follicle.
 - D. A and B are correct
 - E. A, B, and C are correct

65. The blood-testis barrier

- A. ✓ is formed by the occluding junctions between adjacent Sertoli cells.
- B. ✓ prevents exposure of the immune system to spermatocytes.
- C. prevents exposure of spermatogonia to antibodies against spermatozoan plasmalemma.
- D. A and B are correct
- E. A, B, and C are correct

66. Follicular (granulosa) cells of the ovary

- A. have direct contact with the primary oocyte.
- B. are capable of producing estrogens and progesterone.
- C. degenerate during atresia.
- D. A and B are correct
- E. A, B, and C are correct

67. Blood-borne androgens are important in the development and maintenance of

- A. spermatocytes. →
- B. prostatic epithelium. →
- C. spermatogonia.
- D. A and B are correct
- E. A, B, and C are correct

68. Movement of spermatozoa in the duct of the epididymis is predominately caused by

- A. smooth muscle.
- B. ciliary action. →
- C. flagellar action. →
- D. A and B are correct
- E. A, B, and C are correct

69. Prostatic carcinoma is most likely to develop in the

- A. urethral mucosal prostatic glands.
- B. prostatic submucosal prostatic glands.
- C. main prostatic glands.
- D. A and B are correct
- E. A, B, and C are correct

70. At the time of ovulation, the endometrium will most likely be in the

- A. menstrual phase.
- B. proliferative phase.
- C. secretory phase. →
- D. A and B are correct
- E. A, B, and C are correct

71. The ovarian cell(s) that is(are) most equivalent to the Sertoli cells of the testis is(are) =
- A. follicular (granulosa) cells.
 - B. theca interna cells.
 - C. theca externa cells (stromal cells).
 - D. A and B are correct
 - E. A, B, and C are correct
72. Cervical carcinoma is likely to be initiated at or near the
- A. transition between the cervical mucosa and endometrium.
 - B. secretory cells of the cervical (palmate) glands.
 - C. transition between the cervical mucosa and vaginal mucosa.
 - D. A and B are correct
 - E. A, B, and C are correct
73. Glycerophosphocholine is produced by the epithelium of the
- A. seminiferous tubule.
 - B. rete testis.
 - C. duct of epididymis.
 - D. A and B are correct
 - E. A, B, and C are correct
74. A vasectomy usually
- A. blocks the emission of testicular products produced within the seminiferous tubule.
 - B. limits the ability to ejaculate glandular secretions.
 - C. decreases the ability to produce an erection.
 - D. A and B are correct
 - E. A, B, and C are correct
75. Estrogen produced by the ovary is responsible for the
- A. proliferation of the endometrium after menstruation.
 - B. proliferation of ductal epithelium during puberty.
 - C. proliferation of secretory alveolar epithelium during pregnancy. *→ glands*
 - D. A and B are correct
 - E. A, B, and C are correct
76. The seminal vesicle normally
- A. produces the majority of seminal fluid released at ejaculation.
 - B. decreases the amount of fluid produced as testosterone levels decline with normal aging.
 - C. produces fluids necessary to capacitate spermatozoan within ejaculated seminal fluids.
 - D. A and B are correct
 - E. A, B, and C are correct

QUESTIONS 77 TO 81

For each of the next five questions, match the structures labeled A-E to the structures with which it has a direct physical relationship.

- | | | | |
|--------------|---------------------|----|--------------------|
| 77. <u>E</u> | Basilar membrane | A. | oval window |
| 78. <u>B</u> | tunnel of corti | B. | pillar cells |
| 79. <u>D</u> | auditory hair cells | C. | tympanic membrane |
| 80. <u>C</u> | malleus | D. | tectorial membrane |
| 81. <u>A</u> | stapes | E. | Organ of Corti |

QUESTIONS 82 TO 86

Indicate the proper position of reserve (repopulating) epithelial cells for each of the following structures

- A. Predominately at neck of tubular glandular structure
 - B. Predominately at base of tubular glandular structure
 - C. Uniformly distributed along the length and thickness of tubular glandular structure
 - D. None of the above
82. Small intestinal mucosa B
83. Seminiferous tubule D
84. Endometrium B
85. Gastric mucosa A
86. Large intestinal mucosa B

QUESTIONS 87 TO 91

- Answer A if the smooth muscle of the inner layer of organ's external muscular wall appears to be oriented circularly (transversely) relative to major axis of organ
- Answer B if the smooth muscle of the inner layer of organ's external muscular wall appears to be oriented longitudinally to major axis of organ
- Answer C if Neither of the above

- A 87. Ileum
- A 88. Appendix
- B 89. Lower ureter
- B 90. Ductus deferens
- C 91. Upper esophagus

QUESTIONS 92 TO 95

MARK A IF TRUE; MARK B IF FALSE

- B 92. A The blood-brain barrier is a physiological result of the continuous capillaries of the brain having few, if any, transport vesicles, no fenestrations, and numerous desmosomes.
- A 93. A The thickest and most developed layer of a large vein is the tunica adventitia, which contains abundant packets of smooth muscle and vasa vasorum.
- B 94. B A hallmark of an elastic artery is its clearly observable internal elastic lamina with numerous fenestrations.
- A 95. A Fenestrated capillaries without diaphragms are found only in the renal glomerulus.

QUESTIONS 96 TO 100

For each endocrine activity select the letter of the specific cell type which causes the action:

- ~~A.~~ Principal cells of thyroid
- ~~B.~~ Acidophils of the pars distalis
- ~~C.~~ Zona glomerulosa cells
- D. Zona fasciculata cells
- E. Parafollicular cells of thyroid

- A 96. A Site of oxidation of iodide
- C 97. C Aldosterone production
- B 98. B Growth hormone production
- D 99. D Cortisol production
- E 100. E Calcitonin production

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